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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,297	04/01/2004	Kelli E. Prince	COS-799 DIV (API-1109-USD)	8588
25264	7590	10/04/2007	EXAMINER	
FINA TECHNOLOGY INC PO BOX 674412 HOUSTON, TX 77267-4412			BHAT, NINA NMN	
			ART UNIT	PAPER NUMBER
			1764	
			MAIL DATE	DELIVERY MODE
			10/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/816,297	PRINCE ET AL.	
	Examiner	Art Unit	
	N. Bhat	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4-1-2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant is requested to update the continuity data, on page 1, line 1 of the specification. Applicant should update "now US Patent Number 6,762,335".
2. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 2 it is unclear what applicant means by wherein "at least three bales" are added to the displacement cylinder, does applicant mean "baffles" or are "bales" different elements. Suitable explanation and correction is required.
3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:
 1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Butler et al. EP 0724906.

Butler et al. teach a reactor and process for dehydrogenating ethylenebenzene to styrene.

Butler et al. specifically teach a reactor design having an elongated outer shell, an elongated

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displacement member (12, 112, 212, 312, 412, 512) located coaxially within the elongated outer shell, and an annular catalyst (10) there between wherein the displacement member which is equivalent to applicant's "displacement cylinder" has a majority of its length in a cylindrical configuration and the remainder is non-cylindrical in shape. Butler et al. further teach that the displacement member is configured such that approximately one-fourth to one-third of the lower cylindrical portion is replaced by a parabolic portion of consistent parabolic cross-section.[Note the abstract and Column 7, 19-31 and Figures 1-4 and 10]

However, Butler et al. does not teach adding at least one baffle to the top half of the displacement cylinder.

Butler et al. teach in Figure 10, results of utilizing the reactor configuration of Figure 1 with a large baffle located in the position as baffle 16. The baffle is quarter moon shaped having circumference approximately half the circumference and located at position 16. [Note Column 6, lines 21-33]The examiner recognizes that the baffle is not located on the displacement member. However, there is a clear teaching and suggestion in Butler to modify the flow through the reactor in order to optimized the radial flow conditions through the reactor. There is a teaching and suggestion to include baffles to promote mixing and to improve the east-west flow gradients within the reactor. By using baffles and controlling the flow velocities at various points across the up and down reactor cross-sectional configuration, improves catalyst life and better overall performance of the reactor, with these teachings specifically taught it is the position taken by the examiner that including at least one baffle to the top half of the displacement cylinder to improve uniformity of fluid flow in the reaction vessel and cross the catalyst bed has been taught and suggested by the prior art and applicant's invention as a whole is rendered obvious to one having ordinary skill in the art at the time the invention was made.


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6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. EP 2306516 (English Translation) teaches a device for achieving uniform gas distribution in a radial catalytic reactor. Winter, III et al. teach dehydrogenation reactor. Addiego et al. teach an axial flow dehydrogenation reactor used in combination with radial flow reactor, which includes an inner displacement vessel. Carson teaches a countercurrent catalytic contact of a reactant stream in a reactor. Platavoet et al. teach a radial flow gas phase reactor which includes a deflector which directs the flow gas radially through the bed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Bhat whose telephone number is 571-272-1397. The examiner can normally be reached on Monday-Friday, 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


N. Bhat
Primary Examiner
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